

Remarks

Claims 117-127 are pending. Claims 117-127 stand rejected. Claim 117 is amended herein.

Claim 117 as previously amended was objected to on the basis of 35 U.S.C 132 as "introducing new matter into the disclosure". The Office Action stated that Applicant was required to cancel the new matter in this reply. Applicant complies with the requirement and herein amends claim 117.

The requirement is improper. A proper objection to new matter in the claims only, where no amendment was made to the drawings or specification, should be issued under 356 U.S.C. 112, first paragraph (see MPEP 608.04). Accordingly, a rejection of a claim on the basis of new matter is an appealable decision (see MPEP 608.04(c)). Therefore, Applicants traverse the claim matter cancellation requirement and preserve the issue for appeal.

The amendment was fully supported by the specification as originally filed. Support for the amendment can be found in the last sentence of paragraph [0124], which states that "By measuring forage volume increments as they are accumulated, the forage processing machinery can reliably determine a forage yield amount." Additional support for the amendment is found in the last sentence of paragraph [0137], which states that "the accumulation measurement yield monitor may generate a yield amount . . ."

Claims 117-127 were rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The rejection alleges that the claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The rejection restates the allegation that the amendment of claim 117 from "forage mass" to "forage yield amount" does not have support in the specification.

Applicants point to the support provided above. The previously cited portions of the specification recite a forage yield amount. Although the specification does recite a mass flow rate as one form of determined yield amount, the specification clearly is not

limited to just mass flow rate and in numerous places the specification recites "yield amount" without qualification or limitation.

Claim 117 stands rejected under 35 U.S.C. §102(e) over U.S. Patent 6,272,819 (Wendte et al.). Inasmuch as the rejection applies to the claims as amended, Applicants respectfully traverse the rejection.

Claim 117 requires, among other things, a volume increment accumulation measuring device generating a volume increment accumulation signal substantially related to a forage mass.

Wendte does not disclose a volume increment accumulation device. Wendte does not disclose a volume increment accumulation signal. Wendte discloses that, using a sensing assembly (200), "Billets falling down into the external storage device impinge upon deflection plate 202 to exert a *force* on plate 202" (see col. 10, lines 41-43)(emphasis added). Therefore, the sensing assembly (200) of Wendte comprises a force measuring device, *i.e.*, a weight measuring device that measures gravity acting on a mass.

The Court of Appeals for the Federal Circuit, citing the well-known "all elements" rule, has held that "[a]nticipation under 35 U.S.C. § 102 requires the disclosure in a single piece of prior art of each and every limitation of a claimed invention." Apple Computer, Inc. v. Articulate Systems, Inc., 234 F.3d 14, 57 USPQ2d 1057 (Fed. Cir. 2000). Wendte does not include the claim element of a volume increment accumulation measuring device. In addition, Wendte does not include the claim element of a volume increment accumulation signal.

The Office Action refers to the sensing assembly (200) of Wendte (see FIG. 3) as a "volume increment accumulation device (200)". Applicants do not understand where the Examiner obtains this characterization, as the description of Wendte does not characterize the sensing assembly (200) as measuring volume, and refers only to weight, force, and quantity.

The Office Action cites col. 11, lines 11-14 in support of the contention that Wendte discloses that a volume increment accumulation measuring device element and a volume increment accumulation signal element. The cited lines state: "Thus, the

electrical signal generated by cell 208, which is read by monitor circuit 102, depends upon the quantity of sugar cane billets being discharged into the external storage device.” The Office Action again asserts that because Wendte measures a “quantity” that Wendte therefore reads on a volume increment accumulation system. A close scrutiny of Wendte reveals that the term “volume” does not appear anywhere in this prior art reference.

The term quantity does not infer volume, as it is apparent from the text of Wendte that the “quantity” being measured is the weight/force of the sugar cane falling on the deflection plate 202. Wendte processes a force/weight signal produced by the load cell 208. The force/weight signal in Wendte is used to determine a harvested weight of sugar cane (see col. 10, lines 39-43).

It should be noted that the physical relation between volume and mass is volume = (mass)(density). Consequently, it is apparent that volume is NOT equivalent to density. Volume is a measure or expression of the amount of space taken up by an object, without regard to the density or mass of that object. Conversely, mass is a measure of the amount of matter in the object, without regard to the density or amount of space taken up by an object. Two objects that share the same volume do not necessarily share the same mass, and vice versa.

The Court of Appeals for the Federal Circuit held that “during examination proceedings, claims are given their broadest reasonable interpretation consistent with the specification.” *In re Hyatt*, 211 F.3d 1367, 54 USPQ2d 1664 (Fed. Cir. 2000)(emphasis added). The Office Action clearly violates this requirement of reasonable interpretation by reading the claim term “volume” without reference to the specification. In light of the specification, it is NOT reasonable to equate volume to mass, as it is completely clear from the specification that volume as used here is a physical space measurement, and volume is NOT equivalent or equal to mass.

Independent claim 117 therefore includes features that are neither taught nor suggested by Wendte. Applicants respectfully request that the rejection of claim 117 be removed and the claim be allowed.

Claims 117 and 119 stand rejected under 35 U.S.C § 103(a) over U.S. Patent No. 5,913,901 (Bottinger et al.) in view of U.S. Patent No. 5,480,354 (Sadjadi) in view of U.S. Patent No. 6,525,276 (Vellidus). Applicants respectfully traverse the rejection.

Bottinger discloses a square baler that measures the weight/mass of the received mass (see col. 1, lines 8-10). Bottinger discloses measuring a bale weight/mass in conjunction with a baler position (see col. 1, lines 55-58). The Office Action correctly acknowledges that Bottinger does not disclose a volume increment accumulation measurement. The Office Action asserts that the Sadjadi reference provides a yield monitor "which determines yield based on volume measurements."

Sadjadi discloses a grain yield monitor (see col. 1, line 62). Grain yield monitors are known to be incompatible with forage crops for the purpose of yield monitor measurements (see paragraph [0012] of the present application). Therefore, Sadjadi does not teach or suggest a yield monitor for forage crops. Moreover, Sadjadi does not create a volume increment accumulation signal, as Sadjadi measures a distance from a sensor to a pile of grain on a conveyor belt. In operation, Sadjadi shines a grid of light on the conveyor belt and measures the intensity of reflected light (see col. 3, lines 35-39). The signal produced by Sadjadi therefore comprises an optical image. Sadjadi processes the optical image to generate a series of light intensity signals; whereupon Sadjadi converts the light intensity signals into a series of distances that are used to calculate an instantaneous volume measurement of grain (see col. 3, lines 43-50).

It should be noted that there is no accumulation on a conveyor belt, and therefore Sadjadi does not disclose a volume increment accumulation signal. Instead, Sadjadi discloses an instantaneous volume measurement.

The Office Action asserts that Sadjadi discloses a volume measurement, and cites col. 2, lines 2-3 of Sadjadi in support of this assertion. The cited text does disclose an ultimate volume determination based on other measurements and on stored data, but Sadjadi does not measure the volume and does not generate a volume increment accumulation signal. Instead, a close reading of the text of Sadjadi discloses that Sadjadi obtains a series of light intensity measurements, processes the light measurements and converts the light measurements into distance measurements, and finally compares the determined distance approximations to known values in order to approximate dimensions

of the grain on the conveyor belt. Sadjadi then compares the distance approximation coordinates to reference coordinates in order to obtain a volume approximation.

Sadjadi does not measure volume. Sadjadi must process the measurement signals in order to generate a second set of values, and must then process the second set of values against other known values in order to obtain the volume approximation.

The Office Action asserts that Vellidus teaches generating a yield amount by taking into account volume and groundspeed. Vellidus does not disclose a volume increment accumulation device or a volume increment accumulation signal that is substantially related to forage mass. In contrast, Vellidus discloses a yield monitor for a peanut combine. Vellidus measures a crop yield by measuring a mass or weight of harvested peanuts collected in a collection basket (see col. 3, lines 44-54).

None of Bottinger, Sadjadi, or Vellidus discloses a volume increment accumulation device or a volume increment accumulation signal that is substantially related to forage mass. None of Bottinger, Sadjadi, or Vellidus discloses a computer that receives a volume increment accumulation signal. None of Bottinger, Sadjadi, or Vellidus discloses a computer that generates a yield amount based upon the accumulation signal, a forage processing machinery groundspeed, and forage processing machinery intake parameters.

Independent claim 117 therefore includes features that are neither taught nor suggested by the combination of Bottinger, Sadjadi, and Vellidus. Claim 119 is allowable for the same reasons as claim 117.

Claims 120 and 121 stand rejected under 35 U.S.C. § 103(a) as being obvious over Bottinger, Sadjadi and Vellidus and further in view of U.S. Patent 5,855,166 (McPherson). Claims 120 and 121 depend from independent claim 117, and therefore are patentable for the reasons previously discussed.

Claim 127 stands rejected under 35 U.S.C. § 103(a) as being obvious over Wendte in view of U.S. Patent 4,487,002 (Kruse et al.). Claim 127 depends from independent claim 117, and therefore is patentable for the reasons previously discussed.

Claim 117 stands rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent 5,920,018 (Wilkerson et al.) in view of Wendte. Applicants respectfully traverse the rejection.

Wilkerson discloses a sensor for measuring a yield of cotton. Wilkerson discloses that a light sensor is located in a conduit, including a light source and a light receiver (see FIG. 3 and col. 2, lines 23-39). The flow conduit is rectangular in cross section (see col. 4, lines 33-35). A light beam travels across the conduit and a detector unit positioned on an opposite side of the conduit receives light passing through the flow passage and through the air entrained cotton that is flowing through the conduit. Cotton flowing through the conduit will lessen the amount of light that is received by the light receiver device. Wilkerson does not teach or suggest the use of the real time volumetric flow sensor for a forage crop.

The Office Action asserts that Wilkerson "is inherently capable [sic] being used on forage accumulation machinery." This is incorrect. Wilkerson explicitly states that the light sensor arrangement is designed for "Any material, such as grain or wood chips, which may be transported *through a conduit . . .*" (see col. 9, lines 60-61)(emphasis added). Another inherent limitation of Wilkerson is that the material is moved through the conduit by means of a stream of flowing air (see abstract, line 2 and col. 2, lines 23-25).

The volume increment accumulation device of the present application is not limited to measuring a flow of material in a conduit. The volume increment accumulation device of the present application is not limited to measuring a flow of material entrained in air.

As was stated in the background of the present application, forage generally comprises grasses, hay, alfalfa, corn silage, etc. (see paragraph [0010]). The quantification of forage is typically difficult because of the wide variety of plant sizes, plant moisture content, leaf types, stem lengths, toughness, etc. (see paragraph [0012]). Measuring devices and measuring methods applied to grains, etc., are not readily usable for forage harvesting.

The Office Action attempts to combine Wilkerson with a machinery groundspeed and forage processing machinery intake parameters of Wendte. The combination is

improper. The Court of Appeals for the Federal Circuit has held that "It is insufficient that the prior art disclosed the components of the patented device, either separately or used in other combinations; there must be some teaching, suggestion, or incentive to make the combination made by the inventor" Northern Telecom, Inc. v. Datapoint Corp., 908 F.2d 931, 15 USPQ2d 1321 (Fed. Cir. 1990), *cert. denied*, 498 U.S. 920 (1990). There is no teaching or suggestion to combine in either Wilkerson or Wendte. Furthermore, there is no motivation to combine given in either reference. Moreover, the combination would not provide a yield monitor for a forage harvester.

Applicants submit that there are numerous additional reasons in support of patentability, but that such reasons are moot in light of the above remarks and are omitted in the interests of brevity. Applicants respectfully request allowance of claims 117-127.

Please feel free to call me to discuss the patentability of the pending claims.

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